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FIELD IDENTIFICATION OF TROPICAL AND COUCH'S KINGBIRDS

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Illustrated by Andrew Birch²

ABSTRACT

Tropical and Couch's Kingbirds have long been thought as indistinguishable without voice. While voice is still the most diagnostic method for identification, we show that the two species can often be separated in the field by a combination multiple field marks. Important field marks include length/size of bill, brightness of yellow on chest, wing panel contrast, relative length of primaries versus tertials, and shape of tail tip.

INTRODUCTION

Tropical and Couch's Kingbirds are so similar in appearance that they were only recognized as different species by the American Ornithologist's Union in 1983 based on lack of interbreeding in range of overlap (Traylor, 1979). The two species are thought to be virtually indistinguishable in the field without vocalizations. These two species have limited ranges within the United States: Tropical is a year-round resident in southern Texas and a summer resident in southeast Arizona while Couch's is resident in southern and coastal Texas. However, both species are known to wander. Tropical is a regular vagrant to the Pacific coast and to a lesser degree in the Eastern United States. Beyond Texas and the western Gulf Coast, Couch's is a far rarer vagrant, but with greater appreciation of how to separate these two species in the field, records of Couch's are growing. Non-vocal birds continue to pose challenges, making it difficult to fully understand the movements of these two species. Here, we synthesize new and existing knowledge of the field identification of these two difficult species.

RANGE AND SEASONAL STATUS

Tropical Kingbird

Tropical Kingbird has a much more extensive range than Couch's. It is a year-round resident throughout most of its range although it undergoes local movements (Figure 1). In its northern range, it breeds from southeastern Arizona south along the Pacific slope of western Mexico and from southernmost Texas (Rio Grande Valley) south along the Atlantic slope of Mexico to the Yucatan Peninsula and Central America. Its breeding range continues south through northern South America and across the Amazonian basin from the eastern slopes of the Andes to the Atlantic coast. Its breeding range continues south along the Atlantic slope in northern Argentina and Uruguay. On the Pacific side of South America, it breeds in coastal and interior lowlands of Colombia, Ecuador and northern Peru. Tropical is resident also on the islands fringing the northern coast of South America, including the Netherlands Antilles, Trinidad, Tobago, and Grenada.

Although taxonomic details remain debated, there are possibly four subspecies (Traylor, 1979; Phillips, 1994). *T. m. satrapa* is the subspecies of south Texas and eastern Mexico south through Central America, northern Colombia and most of northern Venezuela. *T. m. occidentalis* is the subspecies for western Mexico and southeast Arizona, although *satrapa* and *occidentalis* are often lumped. *T. m. despotes* is the subspecies of northeast Brazil. *T. m. melancholicus* ranges across most of South America excluding the regions occupied by *satrapa* and *despotes*. *T. m. satrapa*, *T. m. occidentalis*, and *T. m. melancholicus* are migratory.

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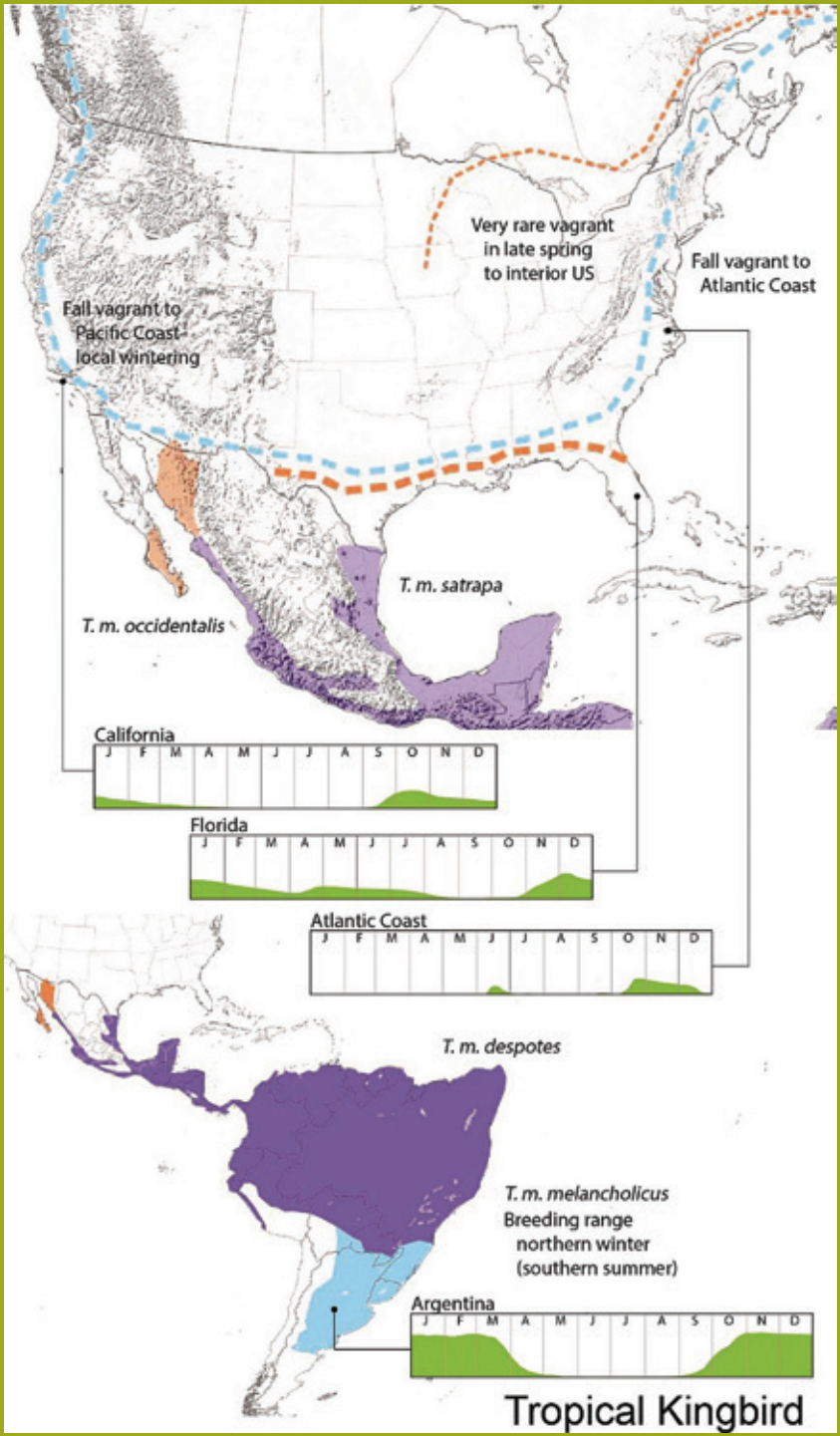


Figure 1. Range map for Tropical Kingbird. Purple = year-round resident, orange = northern summer range, blue = northern winter/southern summer range. Dashed blue line represents wandering range during the northern fall/winter. Thick dashed orange line represents wandering range during northern spring/summer. Thin dashed orange line represents vagrancy limit in spring. Bar charts (green) show seasonal distribution for select regions.

Plate by Cin-Ty Lee.

In the northwestern part of its range (*satrapa* and *occidentalis*), Tropical vacates its breeding grounds in southeastern Arizona and

northwestern Mexico by September, returning to breed in mid-April. South Texas birds are generally present year-round. In the southern

hemisphere, Tropicals (*melancholicus*) vacate their southern breeding grounds of northern Argentina and Uruguay by mid-April as birds move north into the Amazonian basin during the Austral winter. Southern hemisphere birds begin to move south during late August and by mid-October, they have spread across northern Argentina to breed during the Austral summer.

Although Tropical's breeding range in the United States is restricted to southeastern Arizona and south Texas, it is known to wander widely. It is a regular fall vagrant along the Pacific coast, especially along the immediate coast, ranging from Baja California north to Washington with occasional records as far north as southeast Alaska. It is also a fall vagrant to the east coast of the United States south to Florida and the eastern Gulf of Mexico, but numbers are lower than on the west coast. Fall vagrants in the interior United States are possible but rare. The great majority of fall vagrants are juveniles. On the Pacific coast, fall vagrants begin appearing mostly in September, peaking in October. On the Atlantic margin, fall vagrants begin appearing mostly in October. Many of these fall vagrants linger into late fall or even into early winter with many lingering until November or early December. A few remain beyond December, but some of these Atlantic margin birds remain along the Gulf Coast and Florida through the winter. On the Pacific coast, particularly in California, a number of Tropicals stay through the winter. These winter lingerers mostly vacate the region by March. For example, after March, Tropicals are exceedingly rare along the Pacific coast until the following September. Most of these fall vagrants are likely of the *satrapa* and *occidentalis* subspecies presumably because of their northern ranges.

In the spring, Tropical wanders again, but this phenomenon appears to occur only in eastern North America. These spring vagrants are mostly detected between May

and July during which they can be found in the interior United States as far north as the Great Lakes and along the Atlantic margin of North America as far north as the Gaspé Peninsula in Quebec, Canada. There is a record of a stray on 14 May, 1975 on Bermuda (eBird historical records) that fits this general pattern. It is unclear if these eastern strays pertain to the northern subspecies *satrapa* or the Austral migratory subspecies from South America *melancholica*.

Local movements of Tropicals within Texas are interesting. Although Tropical is primarily restricted to the Rio Grande Valley of southernmost Texas, in spring and summer, birds wander north to the Edwards Plateau and east to the upper Texas coast and Louisiana, breeding in some years. These birds probably represent *satrapa*.

Couch's Kingbird

Couch's Kingbird is mainly resident throughout most of its range (Figure 2). It occurs throughout south Texas from Val Verde County east through San Antonio to Victoria County along the mid-Texas coast and south into the Rio Grande Valley. Small numbers have expanded north in recent years with local resident populations occurring north to Austin and as far east as Houston, Texas. Its resident range continues south along the Atlantic slope of Mexico and throughout the Yucatan Peninsula including Belize and northern Guatemala. In Texas and northeastern Mexico, it tends to be rare on the barrier islands defining the immediate coast (Brush, 2020).

Couch's Kingbird shows seasonal movements at the local scale. In some winters, a proportion of the Couch's in south Texas appear to leave the region, but in other winters, numbers may increase in south Texas when small flocks can occasionally be seen. Couch's appears to disperse further north in Texas and east along the Gulf coast in winter, with small numbers reaching coastal Louisiana. In south Texas, mid-March through early April

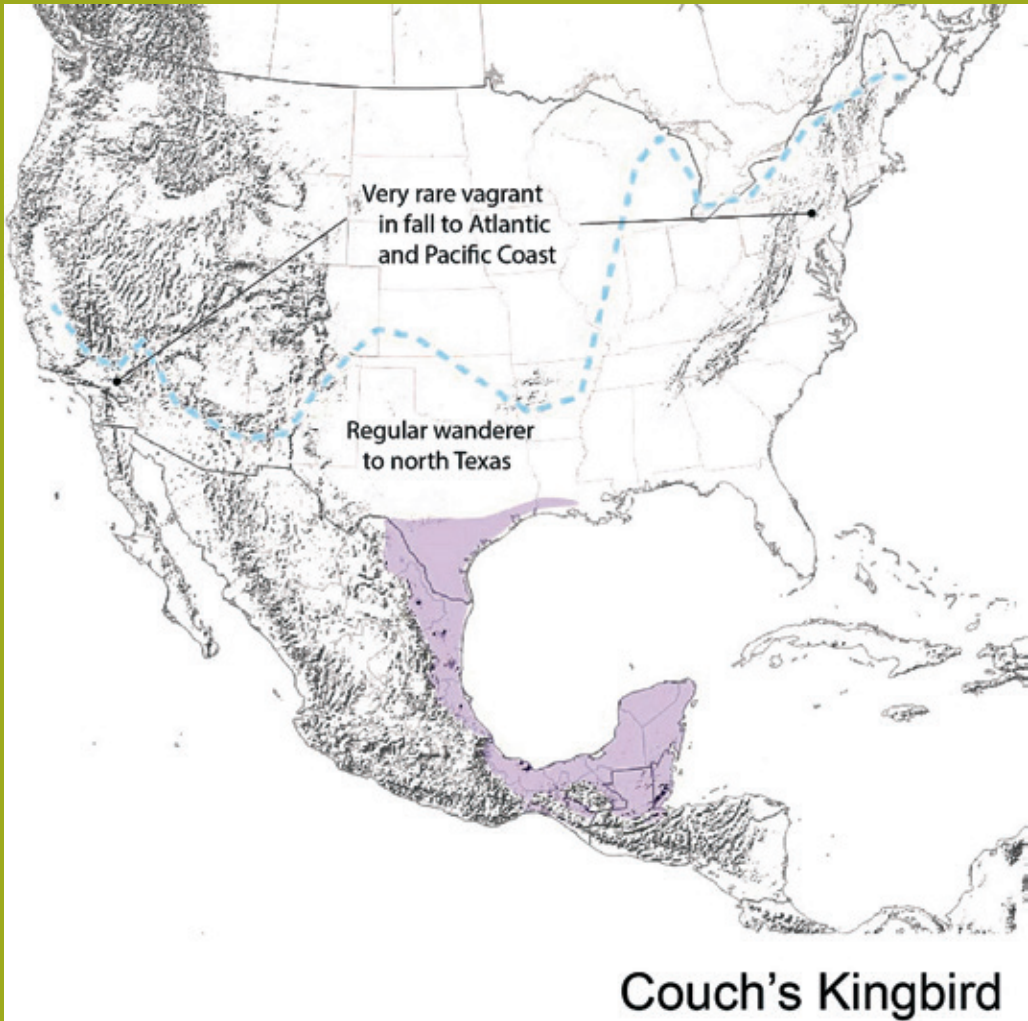


Figure 2. Range map for Couch's Kingbird. Purple = year-round resident. Dashed blue line represents wandering range during the northern fall/winter. Plate by Cin-Ty Lee.

sees noticeable increases in the numbers of Couch's Kingbirds as many return from their wintering grounds further south (Brush, 2020).

In the United States, it is very rare away from south Texas and the Texas-Louisiana coast. Vagrants have been recorded as far west as Arizona and California, north to Michigan, and east to New England and Maryland. Vagrancy appears to be confined to fall with most in late fall (November and December). In the western United States, these vagrants may winter through the end of January. Beyond Texas and Louisiana, vagrant Couch's are far outnumbered by vagrant Tropicals.

HABITAT

Tropical and Couch's Kingbirds have similar habitat preferences. Tropical prefers more open areas with scattered trees in lowlands and foothills, often found around water perched up high at the tops of trees. Tropical is commonly found perched on telephone wires in towns and along roadsides. Couch's is a lowland bird that also frequents semi-open habitats, but it tends to prefer more brushy woodlands than Tropical. Like Tropical, it can often be found near water.

FIELD IDENTIFICATION

The first step in identifying a Tropical/Couch's is to rule out similar looking West-

ern and Cassin's Kingbirds. Tropical/Couch's differ from Western/Cassin's by having a greenish back, more brightly colored yellow underparts, and slightly longer, often forked tails. In addition, the yellow undersides on Tropical/Couch's comes up to the top of the chest, whereas the chest on Western/Cassin's is gray with the gray extending down to the lower chest. Western/Cassin's typically have square-based tail tips and long primary projections. Western/Cassin's also have grayish backs, but Cassin's can show a slightly greenish back. However, the very dark gray head and cheek of Cassin's are diagnostic. Tropical/Couch's have slightly heavier or longer bills than Western. The ground color of Tropical/Couch's tails is dark brown as opposed to black in Western and Cassin's. Western has white outertail feathers, which when seen well is diagnostic as other kingbirds lack this feature. However, Tropical/Couch's may have pale fringes to all of the tail feathers, which can give the appearance of white outer tail feathers if the tail is backlit. Tropical/Couch's Kingbirds also tend to show a dark ear patch unlike Western but reminiscent of Cassin's.

Once a Tropical/Couch's Kingbird is suspected, efforts should be made to record

vocalizations, which are always diagnostic. When vocalizations are not heard, it is important to observe and document the bird from many angles to arrive at a visual identification. Key areas to focus on are the wing panel, bill, tail tip, and extent of yellow on the chest. Below we describe these features in more detail along with a discussion of more subtle structural differences between the two species. Our approach is to focus on features that can be seen in the field or from photographs, and for this reason, we generally avoid using wing formulas or measurements used by banders where measurements can be made of a bird in hand. A summary of field identification is presented into two plates (Figures 3 and 4).

Voice – Voice is the most accurate way to distinguish these two species (Figure 5). Tropical's calls and song are a high pitch, drawn-out twitter. The twitter can be also described as a high-pitched rapid staccato. Couch's emits a distinctive high-pitched, burry call *brREEeeeeer* characterized by an initial rise in pitch followed by long, drawn-out descending tail. Couch's burry call can be emitted singly or in short continuous successions. Couch's also gives short, isolated *pip* calls, which can also be given in association

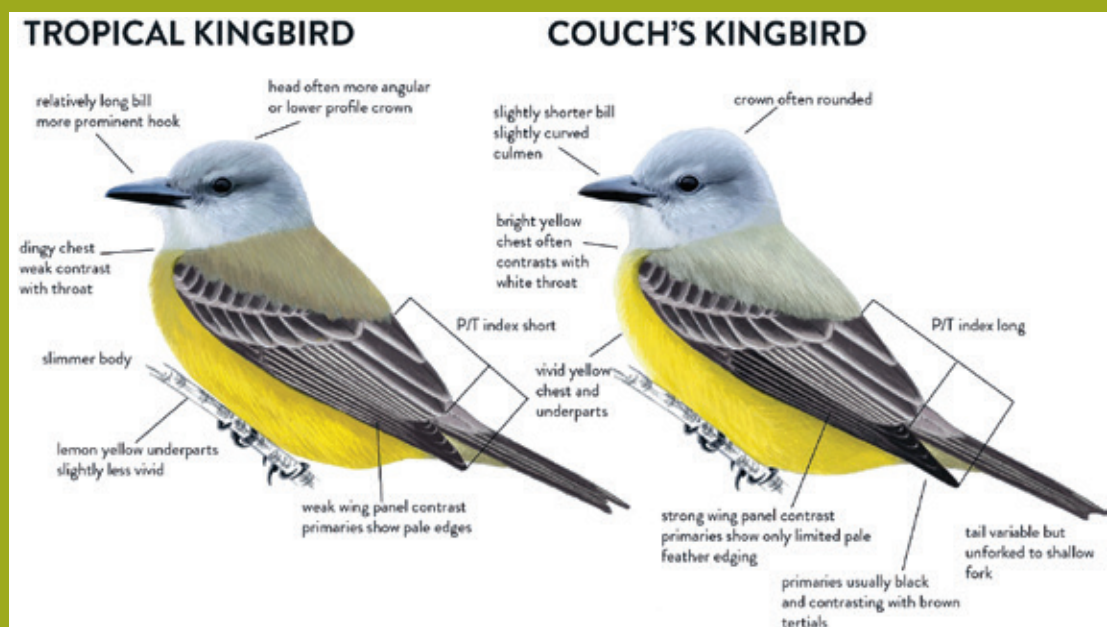


Figure 3. Profile comparisons of Tropical and Couch's Kingbirds. Plate by Andrew Birch.

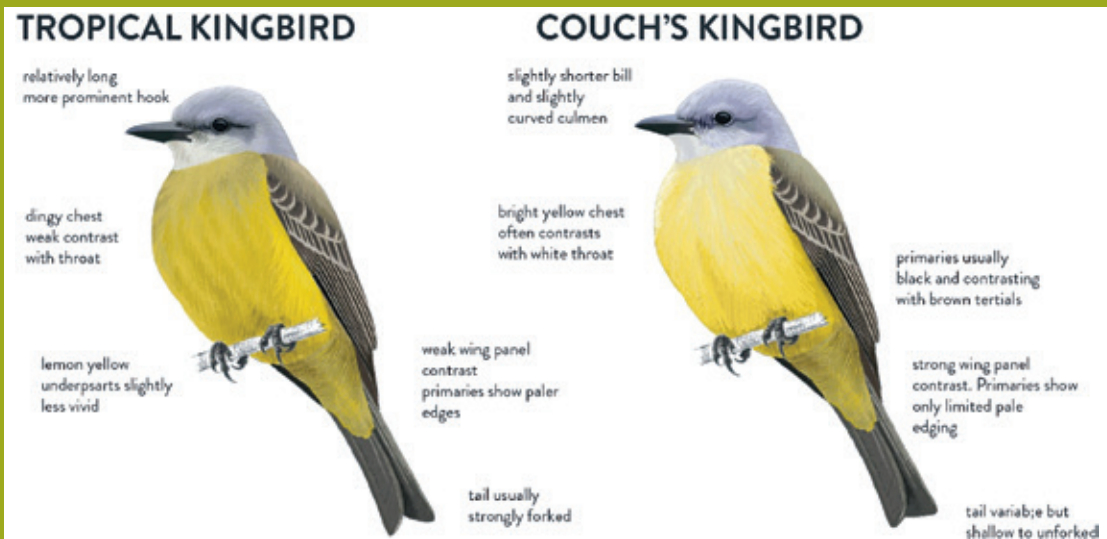


Figure 4. Underside comparisons of Tropical and Couch's Kingbirds. Plate by Andrew Birch.

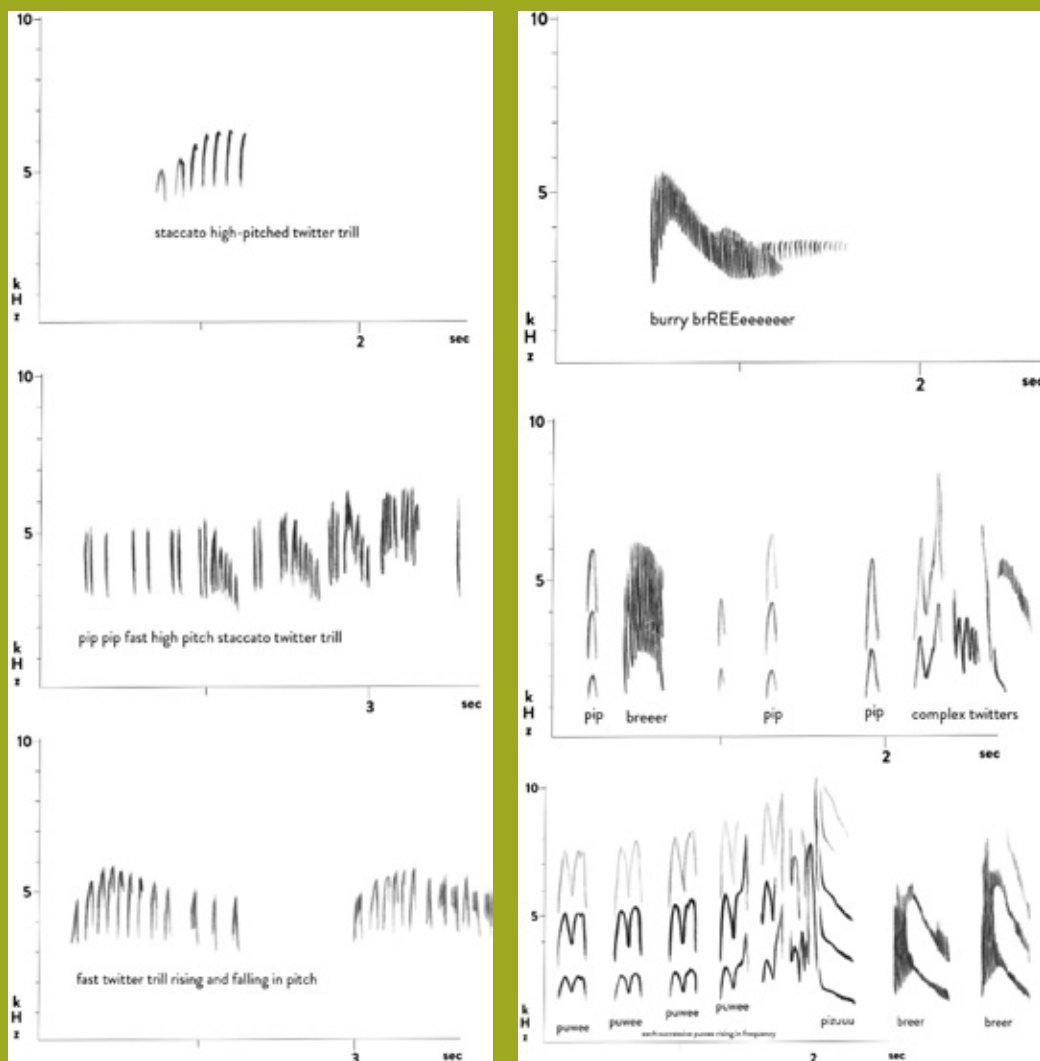


Figure 5. A-C. Tropical calls (A) and songs (B and C). D-F. Couch's burry *brREeeeeeeer* call (D). A variety of Couch's *pip* and short twitter calls (E). Couch's song (F).

with its longer burry call. Couch's *pip* is lower frequency than the Tropical's twitter. Couch's song consists of a series of 2-5 short *puwee* phrases preceding a rapid train of high-pitch *pips* and short twitters.

Wing panel contrast – On the folded wing, the flight feathers can be subdivided into “panels” (Figures 6 and 7). The top panel is made up of the secondaries (which includes the tertials). Beneath the secondary stack lies the primary stack or what we refer to as the lower panel. The primary stack continues be-

yond the end of the secondary stack to form the wingtips, which on the folded wing is often referred to as the primary extension. On both Tropical and Couch's, the outer edges of each secondary feather is white (lower edge on a folded wing), giving a boldly marked secondary stack. From a distance, these bold white secondary feather edges give the appearance of a white striped upper wing panel.

It is in the lower panel, made up by the primaries, where Tropical often differs from Couch's. In Tropical, the outer (lower) edges

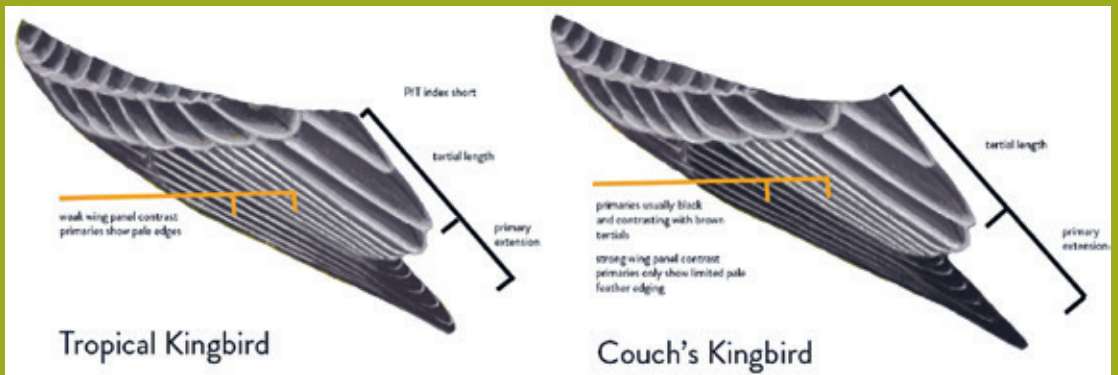


Figure 6. Schematic diagram showing differences in wing panel contrast and ratio of primary extension to tertial length (P/T ratio). Wing panel contrast is primarily controlled on the presence or absence of pale edges to primaries, which make up the lower wing panel stack. Note that in worn birds (summer), it may be very difficult to use the wing panel contrast as a field mark as worn feather edges on Couch's may give the impression of pale edges.



Figure 7. Tropical (top) and Couch's Kingbird (bottom). Note brighter yellow chest on Couch's compared to dingy olive chest of Tropical. P/T ratio of Tropical is shorter than that of Couch's. Note also the stronger wing panel contrast in Couch's compared to Tropical due lack of pale edges on primaries (lower wing panel) in Couch's. Tropical's primaries (lower wing panel) show pale edges, resulting in lower wing panel contrast. Body size difference is an artifact of different skin preparation styles. Specimens are from the TAMU Biodiversity Research and Teaching Collections.

of the primary feathers are pale, much like the white-edged secondary feathers. In Couch's, the primary feathers lack the pale edging. From a distance, this results in Tropical showing low wing panel contrast, that is, the upper and lower wing panels both look striped or pale. In contrast, the lack of pale primary feather edges in Couch's, results in Couch's having a dark lower wing panel, which contrasts with a lighter upper wing panel. When seen well, this feature has proven to be remarkably robust.

Care must be taken, however, to observe or photograph the bird from many angles. Often, the primary stack is hidden beneath the folded secondaries stack, but the observer should wait patiently until the lower wing panel can be seen. Bad lighting conditions can also introduce artifacts. If the lower wing panel is shaded, it can give the impression of a dark lower wing panel, even if it has pale feather edges. Thus, in bad light, Tropical can appear to have a dark lower wing panel from a distance, but careful examination should reveal the pale feather edges in the lower wing panel. Similarly, in very bright direct sunlight, feather edges can reflect light even if they do not have pale fringes. Worn birds in summer should be treated with caution. In these worn birds, excessive wear on

wing feathers can erode the pale fringes of the primaries (making a Tropical wing look like a Couch's) or the worn edges of dark feathers might superficially give a pale-edged appearance (making a Couch's wing look like a Tropical). Except in worn birds, wing panel contrast, specifically the presence or absence of pale feather edges in the lower wing panel, is a very useful distinguishing field mark.

Primary/Tertial Index

Based on experience in the field, there is a subtle difference in the structure of the primaries between these two species. Of interest is the ratio between primary projection (P) and length of tertials (T) on the folded wing, which I refer to here as the P/T ratio (Figures 6 and 8). Primary projection is the distance from the tip of the primaries to the tip of the longest tertial *when the wing is folded*. Dividing the primary projection by the length of the tertials gives the P/T index. Because the P/T index is a ratio, this feature can be measured from any photograph without the need for an absolute scale.

To test these qualitative field observations, the P/T ratio for Couch's and Tropical Kingbirds was determined by analyzing photos from the Macaulay library (identified to species using the above criteria). Results are in Table 1. Couch's measurements per-

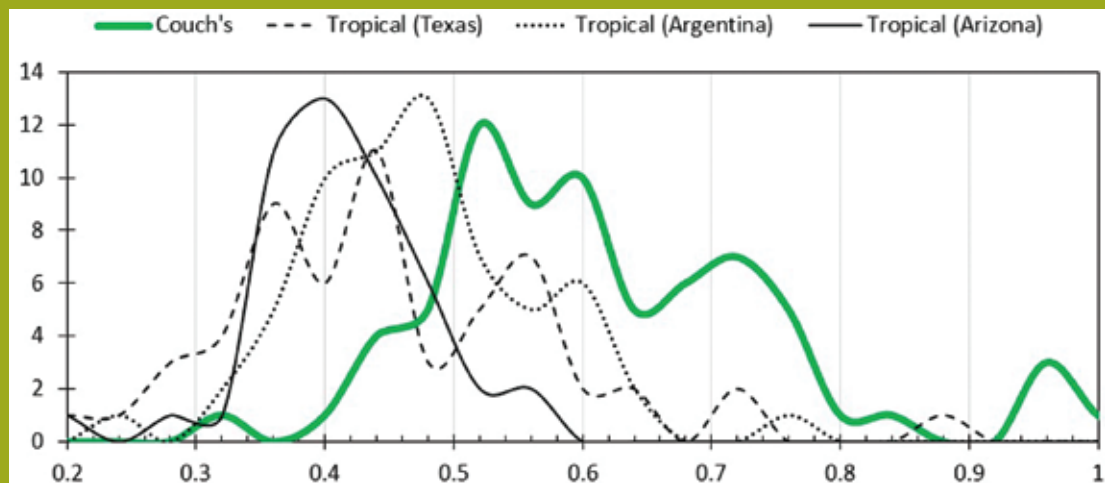


Figure 8. Histogram of the primary extension to tertial length (P/T) ratio in Couch's and Tropical Kingbirds. Tropicals from Texas (USA), Arizona (USA) and Argentina are shown separately. Note that there is a subtle difference in average P/T ratio but there is also considerable overlap.

tain to only birds from Texas. For Tropical, we treated those from Texas (presumably *T. m. satrapa*), Arizona (*T. m. occidentalis*), and Argentina (*T. m. melancholicus*) separately to assess geographic variation. Couch's has a P/T index of 0.6 ± 0.14 (1 σ , n = 71) while Texas Tropicals give 0.43 ± 0.12 (n = 57), Arizona Tropicals give 0.39 ± 0.08 (n = 47) and Argentina Tropicals give 0.46 ± 0.09 (n = 63) (Figure 9). Based on the standard deviations, there is considerable variability within a given species. There is also overlap in P/T between the two species, but the subtle differences observed in the field are confirmed. It is noteworthy that the more migratory subspecies represented by the Argentina birds have slightly larger P/T indices than both northern subspecies. This difference in Tropical subspecies is probably too subtle to be used to confidently identify a vagrant Tropical to subspecies, but it should be carefully documented when the opportunity arises.



Figure 9. Couch's (top) and Tropical Kingbirds (bottom). Note thicker and blunter bill of Couch's compared to the longer, straighter bill of Tropical.

While most vagrant Tropicals in the United States are likely of the northern subspecies, the possibility of the Austral subspecies (*T. m. melancholicus*) in vagrant populations, particularly in spring and summer, can cause confusion when using primary projection alone to distinguish between Couch's and Tropical far outside their normal range.

For completeness, we also mention the wingtip index of Traynor (1979). Traynor's wingtip index measures the lengths of p5 and p10 relative to the longest primary (usually p9



Figure 10. Couch's (left) versus Tropical Kingbird (right). Note the more brightly yellow underparts of Couch's compared to Tropical. Tropical shows a darker more olive wash across upper chest than Couch's. Note longer, thinner bill of Tropical. Body size difference is an artifact of different skin preparation styles. Specimens are from the TAMU Biodiversity Research and Teaching Collections.



Figure 11. Couch's (left) and Tropical Kingbird (right) tails. Note more deeply forked tail of Tropical. Also, corners of Tropical outer tail feathers are more pointy compared to the more rounded corners on Couch's. Specimens are from the TAMU Biodiversity Research and Teaching Collections.

or p8) and is expressed as (length of longest p – length of p5)/length of longest p – length of p10). Couch's has a longer wingtip index (0.5-1.3) than Tropical (0.3-0.8) although there is overlap. This wingtip index may be useful during banding, but is not useful in the field as p5 is never seen on a folded wing. However, good photos of birds in flight may reveal the wingtip index.

Bill – Although both species have heavier bills, subtle differences in size and shape of bill can be discerned with practice. Tropical's bill is slightly longer, narrow and thinner than that of Couch's. Tropical also tends to have a slightly straighter culmen than Couch's (as viewed from the side), resulting in a slightly pointier bill tip. In Couch's, the culmen is slightly convex outwards, resulting in a blunter bill tip. Tropical also has a proportionally narrower bill base than Couch's, which can be seen if viewed from below as is often the case for birds perched high. In summary, Tropical's bill has a longer, meaner appearance while

Couch's bill has a more conical and blunter appearance. Both species have a slight hook at the tip of the upper mandible, but Tropical can appear more hooked than Couch's, accentuating the meaner look of Tropical compared to Couch's.

Tail – The tails of Tropical and Couch's are similar in appearance and show considerable overlap. However, Tropical tends to show a deeper notch or fork to the tail than Couch's. The corners of the tail on Couch's tends to be slightly more rounded compared to the more angular corners in Tropical. Tropical's tail at times appears to flare outwards towards the tip. The depth of the fork in Tropical may vary geographically. The tail of the southern subspecies of Tropical (*T. m. melancholicus*) is the most forked and flared. According to Traynor (1979) the fork may be slightly more pronounced in *T. m. satrapa* compared to *T. m. occidentalis*, although this was not confirmed by my analyses of photos.

Extent of yellow on undersides – Both

Tropical and Couch's are bright yellow below. However, Couch's yellow coloration tends to be bolder compared to Tropical's slightly paler yellow. The bold yellow on Couch's continues to the upper chest and often contrasts strongly with the light gray throat and face. The yellow in Tropical also continues to the upper chest, but the upper chest often shows a dingy olive wash, reducing the contrast between the yellow chest and the gray face and throat. In Couch's, the chest is often solid yellow, lacking the dinginess of Tropical's chest. It important to note that there is overlap in the boldness of yellow undersides and chest, so this field mark should never be used alone.

Overall shape – Tropical tends to be a longer bird with a slightly longer, narrower and more forked tail. Couch's tends to be more compact with a slightly shorter, wider and less forked tail. Head shape overlaps between the two species, but subtle differences at the extremes exist. Tropical tends to have a flatter crown and shallower forehead, accentuating Tropical's meaner look. Couch's head is often more rounded with a slightly steeper forehead, giving it a slight dove-like appearance. Couch's often looks more pot-bellied or barrel-chested than the slimmer overall shape of Tropical.

MOLT AND AGING

Details of molt are described in Pyle (1997). Differences in molt between Couch's and Tropical need further research. The discussion here on molt is generalized and presented only to highlight potential pitfalls of identifying birds with worn feathers.

In Couch's, the prebasic molt occurs on summer grounds (Jul-Sep) and ranges from incomplete-complete in first year birds and mostly complete in adult birds. Prebasic molts include greater coverts, tertials, secondaries primaries and rectrices. Prealternate molt occurs between Feb-May and is rather limited.

In Tropical (*T. m. occidentalis*), the prebasic molt occurs on wintering grounds with first year birds molting between Sep-Nov

(incomplete) and adult birds between Jul-Nov (mostly complete). Prebasic molts include greater coverts, tertials, secondaries primaries and rectrices. Prealternate molt occurs in Feb-May and is rather limited. *T. m. satrapa*'s molt may be more similar to that of Couch's, but more study is needed.

Adults of both species can often look worn in summer (June-Aug) with the edges of flight feathers, covert feathers and rectrices appearing frayed. These worn feathers are replaced during the prebasic molt, which is usually complete by late fall after which the plumage will appear fresher, brighter and crispier. Birds in their first year go through an incomplete prebasic molt between September and November. The juvenal plumage of these first-year birds generally appears fresh with little wear.

In both species, the outermost primary (p10) can be useful in ageing and sexing both species. Juvenal p10 shows a blunt tip whereas adult p10s show more pointed tips with males showing a more tapered or lanceolate tips than females.



Tropical Kingbird (14 Aug 2021; Chalk Bluffs, Uvalde County, TX). Note long bill with straight culmen, shallow forehead, yellow chest with dingy olive wash, and forked tail. Photographed by Cin-Ty Lee.



Tropical Kingbird (21 Dec 2021, Brownsville, TX). Note bill is narrow when seen from below. Note also the slender appearance, which is typical of Tropical. Dingy olive wash across yellow chest reduces contrast between upper chest and white throat. Tail is less forked than typical Tropical. Photographed by Cin-Ty Lee.



Tropical Kingbird (28 Nov 2021, Brownsville, TX). Diagnostic features are deeply forked and flaring tail with pointed tail corners, pale feather edges to primaries in lower wing panel (weak wing panel contrast), dingy olive wash across chest, and narrow bill with straight culmen. Although difficult to see in this photo, P/T index is short. Photographed by Mark Kulstad.



Tropical Kingbird (27 Dec 2021, Brownsville, TX). Pale edges of primary feathers in the lower wing panel are evident. Note also the narrow based bill, dingy olive wash across yellow chest, shallow forehead and flat crown, forked tail, and more angular corners of tail tip. Photographed by Chris Bick.



Couch's Kingbird (12 Apr 2016, Mission County, TX). Note relatively short, conical bill, yellow chest, black lower wing panel, short and minimally forked tail, and long P/T index. Photographed by Bradley Hacker.



Tropical Kingbird (19 Sep 2016, South Padre Island, TX). Diagnostic features are long, narrow bill with straight culmen, shallow sloping forehead and flattish crown, dingy olive wash across chest, pale fringes on primaries in lower wing panel, short P/T index and forked tail. This bird appears to be in the process of replacing some tail feathers. Lower wing panel here looks dark, but note existence of pale edges. Photographed by Letha Slagle.



Couch's Kingbird (29 Dec 2021, Houston, TX). Broad base of bill typical of Couch's can be seen well from this underside view. Note bold yellow chest contrasting with white chin and lacking the dingy olive wash of Tropical. Side of bird is in the shade, but the solid black primaries (lower wing panel) is apparent, contrasting with the pale-edged secondaries stack. Note tail tip shows a very slight fork, much shallower than typical Tropical. Corners of tail tip are slightly rounded instead of angular as in Tropical. Photographed by Cin-Ty Lee.



Couch's Kingbird (14 Mar 2021, Kinney County, TX). Note broad-based of bill typical of Couch's. Bold yellow chest contrasts with white throat. Tail relatively short with shallow fork typical of Couch's. Note rounded corners of tail. Photographed by Cin-Ty Lee.

OUTLOOK

Whenever possible, vocalizations should be noted when identifying a Tropical or Couch's Kingbird. However, if carefully studied, visual identification is possible. Key to a successful visual identification is a holistic approach in which the combination of field marks is used rather than relying on one single field mark. The two species differ subtly in bill shape/size, wing panel contrast, primary/tertiary ratio, body shape, head shape, tail shape and brightness of yellow on chest. Wing panel contrast and primary/tertiary ratio are introduced here as new field marks. While all of the above features are variable, their combination allow identification to species in many instances. Some birds should of course be

left unidentified if most of the above features cannot be examined. This framework for visual identification of Tropical and Couch's Kingbirds allows re-examination of historical photographic records of this complex.

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